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EXAMINER

HUSSAIN, FARRUKH

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. This action is in regards to the response received on 06/30/2009.

No claims have been amended. Claims 1-14 are pending.

Response to Arguments

2. Applicant's arguments filed 06/30/2009 with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Point A. With regards to the Rejection under 35 USC § 103 (a), the applicants argue that Lewis' first setup request message establishes a first unidirectional LSP in preparation for establishing a bi-directional LSP, which is different than creating a protection LSP of the work LSP.

As to Point A, the Examiner agrees that Lewis' first setup request message establishes a first unidirectional LSP in preparation for establishing a bi-directional LSP, which is different than creating a protection LSP of the work LSP. However, Jain teaches creating a protection LSP of the work LSP (See paragraph 0083, lines 1-8 the protection LSPs allow data to be re-routed).

Point B. With regards to the Rejection under 35 USC § 103 (a), the applicants argue that Lewis also fails to disclose the claimed binding information.

As to Point B, the Examiner agrees that Lewis fails to disclose the claimed binding information. However, Owens teaches maintaining a binding between outgoing labels specifying the working path and the protection/recovery path (See column 11, lines 1-11 maintaining a binding between outgoing labels) and

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exchanging label binding information (See column 11, lines 12-31 with respect to the binding information they exchange).

Point C. With regards to the Rejection under 35 USC § 103 (a), the applicants argue that Jain fails to disclose "PML router assigning a label for the protection LSP based on the first message," as recited by Claim 1.

As to Point C, the Examiner respectfully disagrees. Jain does in fact teach or suggest "PML router assigning a label for the protection LSP based on the first message," (See paragraph 0005 lines 1-10 The router (PML) then modifies (assign) the packet by exchanging the outgoing label for the prior label before forwarding the packet along this next hop and See paragraph 0083, lines 1-8 the protection LSPs allow data to be re-routed)

Point D. With regards to the Rejection under 35 USC § 103 (a), the applicants argue that Jain fails to disclose "PML router binding the work LSP with the protection LSP according to the binding information in the notification message," as recited by Claim 1.

As to Point D, the Examiner agrees that Jain fails to disclose "PML router binding the work LSP with the protection LSP according to the binding information in the notification message," However, Owens teaches maintaining a binding between outgoing labels specifying the working path and the protection/recovery path (See column 11, lines 1-11 maintaining a binding between outgoing labels) and exchanging label binding information (See column 11, lines 12-31 with respect to the binding information they exchange).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (US 2004/0004955 A1), in view of Jain (US 2002/0116669 A1) and Owens et al. (Owens) (US 7,315,510 B1).

4. With respect to the claim 1, Lewis reference teaches A method for binding a work label switching path (LSP) with a protection LSP, comprising: A Path Switching Label Switching Router (PSL) transmitting a first message which comprises information to a Path Merging Label Switching Router (PML) to request for creating the LSP of the work LSP (See paragraph 0007, lines 1-9 sending a first LSP setup request message comprising a first bi-directional indicator from the first routing device (Path Switching Label Switching Router (PSL)) to the second routing device (Path Merging Label Switching Router (PML))); and returning a second message which comprises the information (See paragraph 0007, lines 9-17 sending a second LSP setup request message from the second routing device to the first routing device in response to the first bi-direction indicator); upon receiving the second message, the PSL router the work LSP with the LSP

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according to the information, and transmitting a notification message which comprises the information to the PML switched router (See paragraph 0044, lines 8-14 transit router 108 returns an error notification to the LER);

Lewis fails to explicitly teach binding information to a Path Merging Label Switching Router (PML) to request for creating the protection LSP of the work LSP;

However, Jain reference teaches teach the PML router assigning a label for the protection LSP based on the first message (See paragraph 0005 lines 1-10 The router (PML) then modifies (assign) the packet by exchanging the outgoing label for the prior label before forwarding the packet along this next hop and See paragraph 0083, lines 1-8 the protection LSPs allow data to be re-routed), the PML router the work LSP with the protection LSP according to the information in the notification message (See paragraph 0007, lines 1-13 A fault notification is required for each LSP).

Therefore, it would have obvious to a person of ordinary skill in the art at the time of invention was made to have been combined the teachings of Jain to utilize the protection LSP feature within the transmitting a first message which comprises information to a Path Merging Label Switching Router taught by Lewis. The motivation for this would have been to avoid failed network nodes as well as failed network links (See paragraph 0083, lines 1-8 the protection LSPs allow data to be re-routed).

Lewis fails to explicitly teach returning a second message which comprises the binding information; upon receiving the second message, the PSL

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router binding the work LSP with the protection LSP according to the binding information, and transmitting a notification message which comprises the binding information to the PML switched router; the PML router assigning a label for the protection LSP based on the first message, the PML router binding the work LSP with the protection LSP according to the binding information in the notification message.

However, Owens reference teaches maintaining a binding between outgoing labels specifying the working path and the protection/recovery path (See column 11, lines 1-11 maintaining a binding between outgoing labels) and exchanging label binding information (See column 11, lines 12-31 with respect to the binding information they exchange). Therefore, it would have obvious to a person of ordinary skill in the art at the time of invention was made to have been combined the teachings of Owens to utilize the binding information they exchange feature within the transmitting a first message which comprises information to a Path Merging Label Switching Router taught by Lewis. The motivation for this would have been to enables the switchover to the recovery path upon the receipt of a protection switch trigger (See column 11, lines 1-11 maintaining a binding between outgoing labels)

5. With respect to the claim 2, Lewis, Jain and Owens further teaches comprising: before creating the work LSP, designating the PML router and a protection mode of the work LSPs at the PSL switched router; or, after creating the work LSP, designating the PML router and the protection mode of the work LSPs at the PSL switched router (Jain, See paragraph 0085, lines 1-9 one or

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more protection LSPs is defined and See paragraph 0013, lines 1-7 the particular router is using to send data, e.g., those resources being used by label-switched paths (LSPs) set up by that router). The motivation that was utilized in claim 1, applies equally as well to claim 2.

6. With respect to the claim 3, Lewis, Jain and Owens further teaches if the protection mode for the work LSPs is 1+1 mode, the binding information comprises the work LSP identifier, LSP type, and the protection mode (Jain, See paragraph 0106, lines 1-15 the protection provided may be 1:1, 1:n, 1+1, ring, or fast re-route and See paragraph 0021, lines 14-20 a label-switched path that uses a resource identified by the corresponding point of failure); if the protection mode for the work LSPs is 1:1, the binding information comprises the work LSP identifier, LSP type, the protection mode and selection mode of the return LSP in the 1:1 protection mode (Jain, See paragraph 0106, lines 1-15 the protection provided may be 1:1, 1:n, 1+1, ring, or fast re-route and See paragraph 0021, lines 14-20 a label-switched path that uses a resource identified by the corresponding point of failure). The motivation for this would have been to provide a higher level of fault tolerance than other 1:n levels. (Jain, See paragraph 0106, lines 1-15 the protection provided may be 1:1, 1:n, 1+1, ring, or fast re-route)

7. With respect to the claim 4, Lewis, Jain and Owens further teaches comprising, after the PML router receives the notification message, if it is determined that the protection is in the 1:1 mode and it is chosen to create the return LSP dynamically via signaling (Jain, See paragraph 0106, lines 1-15 the

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protection provided may be 1:1, 1:n, 1+1, ring, or fast re-route and See paragraph 0050, lines 1-6 signal integrity verification):

the PML router transmitting to the PSL router a third message of requesting for creating the return LSP, with the binding information included in the third message (Jain, See paragraph 0013, lines 1-7 the particular router is using to send data, e.g., those resources being used by label-switched paths (LSPs) set up by that router and See paragraph 0016, lines 1-8 The label used for a fault notification may be referred to as a "fault information label" (FIL).);

the PSL router assigning a label for the return LSP according to the third message, and returning a fourth message which comprises the binding information (Jain, See paragraph 0013, lines 1-7 the particular router is using to send data, e.g., those resources being used by label-switched paths (LSPs) set up by that router and See paragraph 0016, lines 1-8 The label used for a fault notification may be referred to as a "fault information label" (FIL).);

the PML router binding the work LSP and the return LSP based on the binding information of the fourth message, and transmitting to the PSL router a notification message which comprises the binding information (Jain, See paragraph 0013, lines 1-7 the particular router is using to send data, e.g., those resources being used by label-switched paths (LSPs) set up by that router and See paragraph 0016, lines 1-8 The notification may include the SRLG that corresponds to the particular failure that occurred.);

the PSL router binding the work LSP and the return LSP based on the binding information of the notification message (Jain, See paragraph 0013, lines 1-7 the

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particular router is using to send data, e.g., those resources being used by label-switched paths (LSPs) set up by that router and See paragraph 0016, lines 1-8 The notification may include the SRLG that corresponds to the particular failure that occurred.). The motivation that was utilized in claim 3, applies equally as well to claim 4.

8. With respect to the claim 5, Lewis further teaches wherein, if Resource Reservation Protocol (RSVP) is used to create the LSP, the first message and the third message are path messages in the RSVP, and the second message and the fourth message are Resv messages in the RSVP, and the notification message is Reservation Configuration (ResvConf) message in the RSVP (See paragraph 0008, lines 1-9 the first and second LSP setup request messages are first and second RSVP PATH messages).

9. With respect to the claim 6, Lewis further teaches comprising: extending a binding object in the RSVP, and extending the Path message, Resv message and ResvConf message to comprise information of the binding object to implement the binding of the work LSP and the protection LSP (See paragraph 0008, lines 1-9 the first and second LSP setup request messages are first and second RSVP PATH messages).

10. With respect to the claim 7, Lewis further teaches wherein, if label distribution protocol (LDP) or constraint route-label distribution protocol (CR-LDP) is used to create the LSP, the first message and the third message are the Label Request messages of the LDP or CR-LDP, and the second message and the fourth message are the Label mapping messages of the LDP or the CR-LDP,

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and the notification message is a notification message in the LDP or the CR-LDP (See paragraph 0065, lines 1-12 LDP₁ for example, may be used).

11. With respect to the claim 8, Lewis, Jain and Owens further teaches comprising: extending the binding Type Length Value (TLV) in the LDP or the CR-LDP, and adding the binding TLV to the Label Request message, Label mapping message and notification message to implement the binding of the work LSP and the protection LSP (Jain, See paragraph 0097, lines 1-24 a new type-length value (TLV) may be defined). The motivation for this would have been to a possible fault to be avoided by the protection LSP. (Jain, See paragraph 0097, lines 1-24 a new type-length value (TLV) may be defined)

12. With respect to the claim 9, Lewis, Jain and Owens further teaches if the protection mode for the work LSPs is 1+1 mode, the binding information comprises the work LSP identifier, LSP type, and the protection mode (Jain, See paragraph 0106, lines 1-15 the protection provided may be 1:1, 1:n, 1+1₁ ring, or fast re-route and See paragraph 0021, lines 14-20 a label-switched path that uses a resource identified by the corresponding point of failure); if the protection mode for the work LSPs is 1:1, the binding information comprises the work LSP identifier, LSP type, the protection mode and selection mode of the return LSP in the 1:1 protection mode (Jain, See paragraph 0106, lines 1-15 the protection provided may be 1:1, 1:n, 1+1₁ ring, or fast re-route and See paragraph 0021, lines 14-20 a label-switched path that uses a resource identified by the corresponding point of failure). The motivation that was utilized in claim 3, applies equally as well to claim 9.

13. With respect to the claim 10, Lewis, Jain and Owens further teaches after the PML router receives the notification message, if it is determined that the protection is in the 1:1 mode and it is chosen to create the return LSP dynamically via signaling, further comprising (Jain, See paragraph 0106, lines 1-15 the protection provided may be 1:1, 1:n, 1+1₁ ring, or fast re-route and See paragraph 0050, lines 1-6 signal integrity verification):

the PML router transmitting to the PSL router a third message of requesting for creating the return LSP, with the binding information included in the third message (Jain, See paragraph 0013, lines 1-7 the particular router is using to send data₁ e.g., those resources being used by label-switched paths (LSPs) set up by that router and See paragraph 0016, lines 1-8 The label used for a fault notification may be referred to as a "fault information label" (FIL).);

the PSL router assigning a label for the return LSP according to the third message, and returning a fourth message which comprises the binding information (Jain, See paragraph 0013, lines 1-7 the particular router is using to send data₁ e.g., those resources being used by label-switched paths (LSPs) set up by that router and See paragraph 0016, lines 1-8 The label used for a fault notification may be referred to as a "fault information label" (FIL).);

the PML router binding the work LSP and the return LSP based on the binding information of the fourth message, and transmitting to the PSL router a notification message which comprises the binding information (Jain, See paragraph 0013, lines 1-7 the particular router is using to send data₁ e.g., those resources being used by label-switched paths (LSPs) set up by that router and

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See paragraph 0016, lines 1-8 The notification may include the SRLG that corresponds to the particular failure that occurred.);

the PSL router binding the work LSP and the return LSP based on the binding information of the notification message (Jain, See paragraph 0013, lines 1-7 the particular router is using to send data, e.g., those resources being used by label-switched paths (LSPs) set up by that router and See paragraph 0016, lines 1-8 The notification may include the SRLG that corresponds to the particular failure that occurred.). The motivation that was utilized in claim 3, applies equally as well to claim 10.

14. With respect to the claim 11, Lewis further teaches wherein, if Resource Reservation Protocol (RSVP) is used to create the LSP, the first message and the third message are path messages in the RSVP, and the second message and the fourth message are Resv messages in the RSVP, and the notification message is Reservation Configuration (ResvConf) message in the RSVP (See paragraph 0008, lines 1-9 the first and second LSP setup request messages are first and second RSVP PATH messages).

15. With respect to the claim 12, Lewis further teaches comprising: extending a binding object in the RSVP, and extending the Path message, Resv message and ResvConf message to comprise information of the binding object to implement the binding of the work LSP and the protection LSP (See paragraph 0008, lines 1-9 the first and second LSP setup request messages are first and second RSVP PATH messages).

16. With respect to the claim 13, Lewis further teaches wherein, if the LDP or the CR-LDP is used to create the LSP, the first message and the third message are the Label Request messages of the LDP or CR-LDP, and the second message and the fourth message are the Label mapping messages of the LDP or the CR-LDP, and the notification message is a notification message in the LDP or the CR- LDP (See paragraph 0065, lines 1-12 LDP₁ for example, may be used).

17. With respect to the claim 14, Lewis, Jain and Owens further teaches comprising: extending the binding Type Length Value (TLV) in the LDP or the CR-LDP, and adding the binding TLV to the Label Request message, Label mapping message and notification message to implement the binding of the work LSP and the protection LSP (Jain, See paragraph 0097, lines 1-24 a new type-length value (TLV) may be defined). The motivation that was utilized in claim 8, applies equally as well to claim 14.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FARRUKH HUSSAIN whose telephone number is (571)270-5652. The examiner can normally be reached on Monday-Thursday, Alt. Friday, 7:30 A.M-5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on 571-272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/F. H./
Examiner, Art Unit 2444
11/01/2009

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